

IN THE CLAIMS:

Amend claim 1 and add new claims 2-14 as shown in the following listing of claims, which replaces all previous versions and listings of claims.

1. (currently amended) A snow removal machine comprising:

left and right auger shafts mounted to undergo rotation about respective rotational axes thereof, the auger shafts extending horizontally from a transverse center of the snow removal machine in respective leftward and rightward directions; ~~rightward, respectively; and~~

a left auger having an outer helical auger blade, an intermediate helical auger blade and an inner helical auger blade mounted on the left auger shaft for rotation therewith and extending sequentially from an end of the left auger shaft toward the transverse center of the snow removal machine for collecting snow toward the transverse center of the snow removal machine, the outer helical auger blade and the inner helical auger blade being disposed along a common first helical path and spaced-apart from one another along the rotational axis of the left auger shaft, and the intermediate helical auger blade being disposed along a second helical path angularly shifted substantially 180 degrees with respect to the first helical path; and

a right auger having an outer helical auger blade, an intermediate helical auger blade and an inner helical auger blade mounted on the left auger shaft for rotation therewith and extending sequentially from an end of the right auger shaft toward the transverse center of the snow removal machine for collecting snow toward the transverse center of the snow removal machine, the outer helical auger blade and the inner helical auger blade of the right auger being disposed along a common first helical path and spaced-apart from one another along the rotational axis of the right auger shaft, and the intermediate helical auger blade of the right auger being disposed along a second helical path angularly shifted substantially 180 degrees with respect to the first helical path of the outer and inner helical auger blades of the right auger.

~~left and right augers each having an outer auger blade, an intermediate auger blade and an inner auger blade which extend helically and mounted in the mentioned order from outside toward the transverse center on the left or right auger shaft for collecting snow to the center,~~

~~wherein the outer auger blade and the inner auger blade are positioned along a common first helical path and the intermediate auger blade is positioned along a second helical path phase shifted substantially 180° with respect to the first helical path.~~

2. (new) A snow removal machine according claim 1; wherein when viewing the left auger in a direction along the rotational axis of the left auger shaft, the inner and outer helical auger blades of the left auger are displaced 120 degrees around the left auger shaft and the intermediate and inner helical auger blades of the left auger are displaced 120 degrees around the left auger shaft; and wherein each of the outer, inner and intermediate helical auger blades of the left auger has a peripheral angle of approximately 150 degrees so that a rear end portion of the outer helical auger blade overlaps a front end portion of the inner helical auger blade, a rear end portion of the inner helical auger blade overlaps a front end portion of the intermediate helical auger blade, and a rear end portion of the intermediate helical auger blade overlaps a front end portion of the outer helical auger blade.

3. (new) A snow removal machine according claim 2; wherein when viewing the right auger in a direction along the rotational axis of the right auger shaft, the inner and outer helical auger blades of the right auger are displaced 120 degrees around the right auger shaft and the intermediate and inner helical auger blades of the right auger are displaced 120 degrees around the right auger shaft; and wherein each of the outer, inner and intermediate helical auger blades of the right auger has a peripheral angle of approximately 150 degrees so that a rear end portion of the outer helical auger

blade overlaps a front end portion of the inner helical auger blade, a rear end portion of the inner helical auger blade overlaps a front end portion of the intermediate helical auger blade, and a rear end portion of the intermediate helical auger blade overlaps a front end portion of the outer helical auger blade.

4. (new) A snow removal machine according to claim 3; wherein the left auger has an attitude stabilizing tine mounted on the left auger shaft in the vicinity of the outer helical auger blade of the left auger and arranged approximately 180 degrees out of phase with the front end portion of the outer helical auger blade of the left auger and having a curved claw portion at a distal end of the attitude stabilizing tine which bends toward the front end portion of the outer helical auger blade of the right auger, a driving tine mounted on the left auger shaft in the vicinity of the inner helical auger blade of the left auger and arranged approximately 180 degree out of phase with the front end portion of the inner helical auger blade of the left auger and having a curved claw portion at a distal end of the driving tine which bends toward the front end portion of the inner helical auger blade of the right auger, and a snow removing tine mounted on the left auger shaft and disposed inwardly of the inner helical auger blade of the left auger and having a

curved claw portion at a distal end of the snow removing tine which bends away from the right auger.

5. (new) A snow removal machine according to claim 4; wherein the right auger has an attitude stabilizing tine mounted on the right auger shaft in the vicinity of the outer helical auger blade of the right auger and arranged approximately 180 degrees out of phase with the front end portion of the outer helical auger blade of the right auger and having a curved claw portion at a distal end of the attitude stabilizing tine which bends toward the front end portion of the outer helical auger blade of the left auger, a driving tine mounted on the right auger shaft in the vicinity of the inner helical auger blade of the right auger and arranged approximately 180 degree out of phase with the front end portion of the inner helical auger blade of the right auger and having a curved claw portion at a distal end of the driving tine which bends toward the front end portion of the inner helical auger blade of the left auger, and a snow removing tine mounted on the right auger shaft and disposed inwardly of the inner helical auger blade of the right auger and having a curved claw portion at a distal end of the snow removing tine which bends away from the left auger.

6. (new) A snow removal machine according to claim 1; wherein each of the outer helical auger blade, the intermediate helical auger blade and the inner helical auger blade of each of the left and right augers has a plurality of cutting blades formed in an outer peripheral edge thereof, the cutting blades being curved laterally outward so that for each of the outer, intermediate and inner helical auger blades of each of the left and right augers, adjacent cutting blades overlap with each other in a direction generally perpendicular to the rotational axis of the respective left and right auger shafts.

7. (new) A snow removal machine according to claim 6; wherein for each of the outer, intermediate and inner helical auger blades of each of the left and right augers, each of the cutting blades has a cutting-in blade portion extending from a front end to a central portion of the cutting blade and a cutting-off blade portion extending from the central portion to a rear end of the cutting blade, the cutting-in blade portion having a plurality of saw teeth, and the cutting-off blade portion having a blade portion at a rear end thereof bent inwardly in a direction generally transverse to the rotational axis of the corresponding one of the left and right auger shafts.

8. (new) A snow removal machine comprising:  
a body having a central axis;  
a blower housing mounted on the body so as to surround the central axis of the body;

a first auger shaft mounted to undergo rotation relative to the body about a rotational axis, the first auger shaft extending in a first direction generally transverse to the central axis of the body;

a first auger having an outer helical auger blade, an intermediate helical auger blade and an inner helical auger blade mounted on the first auger shaft for rotation therewith and extending sequentially from an end of the first auger shaft toward the central axis of the body for directing snow toward the blower housing, the outer helical auger blade and the inner helical auger blade being disposed along a common first helical path and spaced-apart from one another along the rotational axis of the first auger shaft, and the intermediate helical auger blade being disposed along a second helical path angularly shifted substantially 180 degrees with respect to the first helical path;

a second auger shaft mounted to undergo rotation relative to the body about a rotational axis, the second auger shaft extending in a second direction opposite the first direction and generally transverse to the central axis of the body; and

a second auger having an outer helical auger blade, an intermediate helical auger blade and an inner helical auger blade mounted on the second auger shaft for rotation therewith and extending sequentially from an end of the second auger shaft toward the central axis of the body for directing snow toward the blower housing, the outer helical auger blade and the inner helical auger blade of the second auger being disposed along a common first helical path and spaced-apart from one another along the rotational axis of the second auger shaft, and the intermediate helical auger blade of the second auger being disposed along a second helical path angularly shifted substantially 180 degrees with respect to the first helical path of the outer and inner helical auger blades of the second auger.

9. (new) A snow removal machine according claim 8; wherein when viewing the first auger in a direction along the rotational axis of the first auger shaft, the inner and outer helical auger blades of the first auger are displaced 120 degrees around the first auger shaft and the intermediate and inner helical auger blades of the first auger are displaced 120 degrees around the first auger shaft; and wherein each of the outer, inner and intermediate helical auger blades of the first auger has a peripheral angle of approximately 150 degrees so that a rear end portion of the outer helical auger blade overlaps a front end portion of the inner helical auger



blade, a rear end portion of the inner helical auger blade overlaps a front end portion of the intermediate helical auger blade, and a rear end portion of the intermediate helical auger blade overlaps a front end portion of the outer helical auger blade.

10. (new) A snow removal machine according claim 9; wherein when viewing the second auger in a direction along the rotational axis of the second auger shaft, the inner and outer helical auger blades of the second auger are displaced 120 degrees around the second auger shaft and the intermediate and inner helical auger blades of the second auger are displaced 120 degrees around the second auger shaft; and wherein each of the outer, inner and intermediate helical auger blades of the second auger has a peripheral angle of approximately 150 degrees so that a rear end portion of the outer helical auger blade overlaps a front end portion of the inner helical auger blade, a rear end portion of the inner helical auger blade overlaps a front end portion of the intermediate helical auger blade, and a rear end portion of the intermediate helical auger blade overlaps a front end portion of the outer helical auger blade.

11. (new) A snow removal machine according to claim 10; wherein the first auger has an attitude stabilizing tine mounted on the first auger shaft in the vicinity of the outer

helical auger blade of the first auger and arranged approximately 180 degrees out of phase with the front end portion of the outer helical auger blade of the first auger and having a curved claw portion at a distal end of the attitude stabilizing tine which bends toward the front end portion of the outer helical auger blade of the second auger, a driving tine mounted on the first auger shaft in the vicinity of the inner helical auger blade of the first auger and arranged approximately 180 degree out of phase with the front end portion of the inner helical auger blade of the first auger and having a curved claw portion at a distal end of the driving tine which bends toward the front end portion of the inner helical auger blade of the second auger, and a snow removing tine mounted on the first auger shaft and disposed inwardly of the inner helical auger blade of the first auger and having a curved claw portion at a distal end of the snow removing tine which bends away from the second auger.

12. (new) A snow removal machine according to claim 11; wherein the second auger has an attitude stabilizing tine mounted on the second auger shaft in the vicinity of the outer helical auger blade of the second auger and arranged approximately 180 degrees out of phase with the front end portion of the outer helical auger blade of the second auger and having a curved claw portion at a distal end of the

attitude stabilizing tine which bends toward the front end portion of the outer helical auger blade of the first auger, a driving tine mounted on the second auger shaft in the vicinity of the inner helical auger blade of the second auger and arranged approximately 180 degree out of phase with the front end portion of the inner helical auger blade of the second auger and having a curved claw portion at a distal end of the driving tine which bends toward the front end portion of the inner helical auger blade of the first auger, and a snow removing tine mounted on the second auger shaft and disposed inwardly of the inner helical auger blade of the second auger and having a curved claw portion at a distal end of the snow removing tine which bends away from the first auger.

13. (new) A snow removal machine according to claim 8; wherein each of the outer helical auger blade, the intermediate helical auger blade and the inner helical auger blade of each of the first and second augers has a plurality of cutting blades formed in an outer peripheral edge thereof, the cutting blades being curved laterally outward so that for each of the outer, intermediate and inner helical auger blades of each of the first and second augers, adjacent cutting blades overlap with each other in a direction generally perpendicular to the rotational axis of the respective first and second auger shafts.

14. (new) A snow removal machine according to claim 13; wherein for each of the outer, intermediate and inner helical auger blades of each of the first and second augers, each of the cutting blades has a cutting-in blade portion extending from a front end to a central portion of the cutting blade and a cutting-off blade portion extending from the central portion to a rear end of the cutting blade, the cutting-in blade portion having a plurality of saw teeth, and the cutting-off blade portion having a blade portion at a rear end thereof bent inwardly in a direction generally transverse to the rotational axis of the corresponding one of the first and second auger shafts.